

European Lunar Symposium 18-20 April 2012
Forum Adlershof
Rudower Chaussee 24
12489 Berlin, Germany

Wednesday, 18 April 2012

The European Lunar Lander mission: Information day and discussion forum

1300	Welcome and Introduction	DLR
1305	Introduction to the Moon and recent scientific results	R. Jaumann (DLR)
1325	The ESA Lunar Lander	B. Gardini & B. Houdou (ESA)
1345	Science and Payload on the ESA Lunar Lander	J. Carpenter (ESA)
1405	Moon exploration and the Lunar Lander	Claasen/Henn (DLR)
1425	Design and development of the ESA Lunar Lander	T. Diedrich (Astrium)
1445	Concept of a Phase A mobile payload element	P. Hofmann (KT)
1500	Coffee	
1530	Q&A with the Lunar Lander team	Chairs: R. Jaumann (DLR) & M. Anand (OU)
1630	Close	

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Thursday, 19 April, 2012

0800 - 1730 Registration

0830 - 0840 Welcome/Background/Logistics

Plenary (Chair: R. Jaumann)

0840 - 0910 J. Head (keynote)

The Moon as a touchstone for Solar System science: Lunar scientific frontiers and goals for future human and robotic exploration

0910 - 0930 H. Hiesinger (keynote)

Dating the Moon with crater size-frequency distribution measurements

0930 - 0945 B. Trey

Study of the last 3 billion years lunar cratering chronology from small size crater density

0945 - 1000 W.M. Vaughan

Orientale Impact Melt Lake: Depth and Differentiation

1000 - 1015 M. Kato

Summary of Kaguya Science

1020 - 1050 Refreshments

1050 – 1110 Ben Bussey (keynote)

Lunar Bistatic Radar Observations Using The Arecibo Observatory & The Mini-RF On LRO

1110 - 1125 E. Speyrer

In Search of Shade in Persistently Illuminated Regions Near the Lunar Poles

1125 - 1140 A.B. Sanin

Searching for water ice permafrost: LEND results from LRO

1140 – 1155 L.F.A. Teodoro

Models of Water Migration in the Lunar Subsurface

- 1155 - 1215 M. Anand (keynote)**
The Abundance, Distribution, and Source(s) of Water in the Moon

1215 – 1315 Lunch

Parallel Session I (Chair: H. Hiesinger)

- 1320 - 1340 K. Joy (keynote)**
Advancements in Lunar Science from Studies of Lunar Meteorites
- 1340 - 1355 R. Tartese**
Hydrogen and lead isotopic characteristics of lunar meteorite MIL 05035
- 1355 - 1410 J. Fritz**
Lunar meteorite Y-82192, Helium-3, and the lunar crater Giordano Bruno
- 1410 - 1425 L. Alexander**
Examining the diversity of Apollo 12 basalts through geochemical and mineralogical studies of basaltic coarse fines from the Apollo 12 soil sample 12023,155
- 1425 - 1440 Y. Miura**
New model of lunar crust with impact-related aggregates and processes
- 1440 - 1500 V.A. Fernandes (keynote)**
The early Moon: Impact record and other parameters

Parallel Session II (Chair: H. Hoffmann)

- 1325 - 1340 C. Schröder**
MIMOS IIA - A tool for chemical and mineralogical characterization of lunar dust and regolith and in situ resource utilisation
- 1340 - 1355 S.A. Chalkey**
Lunar Dust Analysis Package (LDAP)
- 1355 – 1410 S. Kempf**
Compositional mapping of the lunar surface with a dust detector
- 1410 - 1425 S. Sheridan**
A mole deployed mass spectrometer for in-situ sub-surface volatile characterisation
- 1425 – 1440 E. Palomba - (Poster - Thu)**
MOVIDA: An instrument for the characterization of lunar dust charging and

levitation process and measurement of volatiles.

- 1440 - 1455 M. Banaszkiewicz**
Moon sub-surface explorer 'MOUSE' - The complex instrument for geotechnical parameters determination of the lunar regolith

1500 - 1600 Refreshments + Posters

Parallel Session III (Chair: H. Hoffmann)

- 1600 - 1620 M. Horanyi (keynote)**
Dusty Plasma Physics on the Lunar Surface
- 1620 - 1635 A. Keating**-Patricia Gonçalves
Lunar radiation environment
- 1635 - 1650 S. Barabash**
Energetic neutral atoms from the Moon. Review of the Chandrayaan/SARA observations and future investigations
- 1650 - 1705 D. Currie**
Current Status and Performance of the Lunar Laser Ranging Retroreflector for the 21st Century
- 1705 - 1720 A. Grumpe**
Normalisation of Continuum-Removed Lunar Spectra
- 1720 - 1735 P Meslin**
The DORN experiment: An alpha spectrometer dedicated to the characterization of the transport of lunar volatiles

Parallel Session IV (Chair: G. Schmidt)

- 1600 - 1620 A. Hall (keynote)**
Opportunities for Science aboard Google Lunar X PRIZE spacecraft
- 1620 - 1635 T.F. Mortensen**
~~To the Moon on a shoestring. EUROLUNA'S entry in the X prize competition.~~
- 1635 - 1650 M. Deak**
Lunar surface analogy simulation of the proposed landings sites of team PULI space - Hungarian GLXP team

- 1650 - 1705** **M. Lavanga**
Italy and the Google Lunar X Prize competition: The AMALIA project state of the art
- 1705 - 1720** **S. Sedykh**
~~A Moon rover platform for scientific experiments from Selenokhod—the Russian Google Lunar X PRIZE team~~
- 1720 - 1735** **J.L. Gutiérrez**
Spherical rover for lunar and planetary exploration
- 1900 – 2100** **Dinner reception**

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Friday, 20 April, 2012

0800 - 1400 Registration

Parallel Session V (Chair: N. Schmitz)

- 0830 - 0850 N. Bowles (keynote)**
An overview of the Diviner Compositional Investigation - from the lab to the Moon and back again.
- 0850 - 0905 B. Greenhagen**
Lunar Thermal Properties Observed by the Diviner Lunar Radiometer
- 0905 - 0920 O.V. Wilkman**
Lunar mare photometry from SMART-1/AMIE data
- 0920 - 0935 M. Klein Wolt**
Ultra-Long-Wavelength Radio Observations on the moon; probing the Lunar environment and the cosmological Dark Ages
- 0935 - 0955 I. Crawford (keynote)**
Astrobiology on the Moon

Parallel Session VI (chair: V. Fernandes)

- 0830 - 0845 A.D. Morse**
The Lunar Volatile Resources Analysis Package
- 0845 - 0900 F. Rull**
Mineralogical and geochemical characterization of the Moon surface using combined Raman-LIBS techniques
- 0900 - 0915 E. Diaz**
Raman laser spectrometer development for lunar applications
- 0915 - 0930 G. Klingelhöfer**
An Active X-ray Spectrometer (AXS) for the Rover of the Japanese SELENE-2 Mission for Chemical In-situ Characterization of Lunar Material
- 0930 - 0945 P.H. Smith**

Lunar X-ray spectroscopy with a new generation of swept charge devices on the Chandrayaan-2 CLASS instrument

- 0945 - 1000** **L. Pompilio**
A miniaturised XRD/XRF instrument for the in situ analysis of lunar soils/rocks
1000 - 1100 Refreshments + Posters

Parallel Session VII (chair: N. Schmitz)

- 1100 - 1120** **J. Lazio (keynote)**
The Moon as a Science Platform
- 1120 - 1135** **H.G. Hinghofer-Szalkay**
Physics and Physiology: The hydrostatic indifference concept
- 1135 - 1150** **N. Goswami**
Lunar Base for Life Sciences Experiments
- 1150 - 1205** **C. Schwandt**
The molten salt electrolytic winning of oxygen and metal from lunar regolith
- 1205 - 1220** **S. Parzinger**
Thermodynamic aspects of lunar regolith processing for SWIP evolution - Experiments and theory

Parallel Session VIII (chair F. Sohl)

- 1100 - 1120** **W. van Westrenen (keynote)**
Titanium-rich melts are neutrally buoyant in the deep lunar interior
- 1120 - 1135** **N. Rai**
Siderophile elements in the Moon: Metal-silicate partitioning and implications for lunar core formation
- 1135 - 1150** **M. Knapmeyer**
~~Deep moonquake focal mechanisms: recovery and implications~~
- 1150 - 1205** **P.D. Noerdlinger**
A New Disintegrative Capture Theory for the Origin of the Moon
- 1205 - 1220** **I. Garrick-Bethell**
~~Lunar impactors: A low-cost cubesat mission to lunar magnetic anomalies~~

1225 - 1355 Lunch

Plenary (Chair: M. Anand)

- 1400 - 1420 J.D. Carpenter (keynote)**
Science and payload activities in support of the ESA Lunar Lander
- 1420 - 1440 I.G. Mitrofonov (keynote)**
Scientific investigations of future Russian Lunar landers
- 1440 - 1500 T.D. Swindle (keynote)**
MoonRise: Sample Return from South Pole-Aitken Basin
- 1500 - 1520 R. Jaumann (keynote)**
A dedicated Small Lunar Exploration Orbiter (S-LEO)
- 1520 - 1550 D.A. Kring (keynote)**
Using the Moon to Explore the Evolution of the Entire Solar System
- 1550 - 1600 Closing remarks**

Posters Thursday 1500 – 1600

- 1 **J.J. Barnes** - Lunar Volatiles: An examination of hydrogen isotopes and hydroxyl content
- 2 **N. Khisina** - Oriented symplectic inclusions in lunar olivine: An evidence for H₂O in lunar magmas?
- 3 **S.I. Demidova** - Petrography and an age of KREEP gabbro-noritic clasts in the Dhofar 1442 lunar meteorite
- 4 **A. Colin** - Exploring the feasibility of determining lunar soil water contents with a combined Raman/LIBS Instrument
- 5 **S. Pugacheva** - Chemical composition of lunar regolith in craters with cold traps at the lunar Poles.
- 6 **A.A. Berezhnoy** - The Na exosphere of the Moon during Perseid 2009 meteor shower
- 7 **Y. Miura** - Lunar reservoir of various elements by porous filter of regolith soils.
- 8 ~~**E. Seran** - Lunar Dust Lifting Experiment (LDLE) for the ESA Lunar Lander:
NASA/GRC rover campaign in desert of Nevada~~
- 9 **K.N. Burns** - LROC Digital Elevation Modeling of Key Science Targets
- 10 **E. Speyerer** - Automatic Registration of Altimetric Observations to Stereo Derived Elevation Models
- 11 **D. Rommel** - Photogeological study of central uplifts in some lunar impact craters.
- 12 **S. Khan** - Analysis of Crater Lara and Immediate Neighborhood as Potential Science Landing Targets
- 13 **S. Koeber** - Lunar craters with exterior impact melt deposits
- 14 **Y. Lu** - Correlations between iron distribution and morphological evolution of mare Moscoviense.
- 15 **E. Sharkov** - Development of the biggest and the least terrestrial planets: Evidence from comparative study of the Earth and the Moon

Posters Friday 1000 – 1100

- 1 **M. Sinitsyn** - Some Astronomical Aspects of the Study of Lunar Regolith
- 2 **Y. Lu** - Is it interstellar matter on the Moon?
- 3 **N. Petrova** - Qualitative estimation of the sensitivity of the stellar coordinates to the deformability of the lunar body when simulation observations in the Japanese project ILOM
- 4 **W. Zhang** - Extra high underground temperature of Oceanus Procellarum revealed by Chang'e-1 lunar microwave radiometer data
- 5 **W. Zhang** - Chang'e-1 lunar microwave radiometer data analysis and comparison with Diviner data
- 6 **E.J. Ingram** - How do results from a commercial finite element thermal transfer code compare with analytical methods and surface brightness temperature observations from the Lunar Diviner Radiometer on Lunar Reconnaissance Orbiter?
- 7 **I.R. Thomas** - Mid- and Far-Infrared Laboratory Measurements in Support of the Diviner Lunar Radiometer
- 8 **W. van Westrenen** - Radiogenic heat production in the Moon constrained by plagioclase-melt partitioning of uranium and thorium
- 9 **O.B. Khavroshkin** - Multiple reflected seismic lunar waves and core of the Moon
- 10 **T. Warren** - The space environment goniometer
- 11 **H. Noda** - Development status of the Lunar Laser Ranging Experiment for SELENE-2
- 12 **M.P.M. Varman** - An Experimental Study On Human And Robotic Partnerships To Realize Lunar Outpost Strategies
- 13 **R. Swain** - Gene bank in lunar PSRs
- 14 **M.I. Shpekin** - Estimate of the lunar surface age: Introduction and discussion
- 15 **M.I. Shpekin** - Estimate of the lunar surface age: Discussion and results
- 16 **J.-P. de Vera** - Supporting Mars exploration: BIOMEX in low Earth orbit as first step to start further astrobiological experiments on the Moon by the use of Raman and PanCam technology